REMARKS

Claims 1-24, 26-35, and 37-49 are pending. Claim 49 stands objected to. Claims 16 and 27 stand rejected under 35 U.S.C. § 112, first paragraph as based on a disclosure which is not enabling. Claims 8 and 15 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 16 and 27 stand rejected under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. Claims 16, 24, and 26 stand rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. Claims 1-3, 5-17, 24, 27-28, 35, and 38-49 stand rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent Publication No. 2005/0060704 to Bulson et al. Claims 4, 26, and 37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2005/0060704 to Bulson et al. Claims 20-23 and 31-34 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2005/0060704 to Bulson et al. in view of U.S. Patent No. 6,704,764 to Ottati. Claims 18-19 and 29-30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2005/0060704 to Bulson et al. in view of U.S. Patent No. 6,704,764 to Ottati and U.S. Patent Publication No. 2002/0013827 to Edstrom et al.

Reconsideration is requested. The rejections are traversed. No new matter is added. Claims 8, 15-16, 20-21, and 49 are amended. Claims 50-53 are added. Claims 1-24, 26-35, and 37-53 remain in the case for consideration.

The Examiner's rejection of claim 20 (*see* Office Action dated May 11, 2009, page 16) is incomplete, making it impossible for the Applicant to respond to the Examiner's argument. As claim 31 is rejected for the same reasons as claim 20 (*see* Office Action dated May 11, 2009, page 17), the Applicant is similarly unable to respond to the rejection of claim 31. The Applicant respectfully requests that the next Office Action not be made final, to give the Applicant a fair opportunity to respond to the Examiner's rejection of these claims.

CLAIM OBJECTIONS

The Examiner objects to claim 49 because "A service apparatus" should be "An article". Claim 49 has been amended to address this objection.

REJECTIONS UNDER 35 U.S.C. § 112, ¶ 1

In rejecting claims 16 and 27, the Examiner argues that it is "essential" to the invention to claim what happens "'[i]f the requested service is not in the list of services'" (*see* Office Action dated May 11, 2009, page 3). As the claims do not recite what happens if the requested service is not in the list of services, the Examiner argues that the claim omits critical or essential elements, and is therefore not enabling. The Applicant respectfully disagrees.

First, the Applicant notes that claims 16 and 27 have "omitted" this feature since the claims were originally filed, but the Office Action dated May 11, 2009 is the first time the Examiner has raised this issue. Under 37 C.F.R. § 1.104, "[t]he examiner's action will be complete as to all matters", and since the claims have not been amended to remove this omitted "essential" feature, the rejection, if correct, could and should have been made previously.

Second, nowhere in the specification is any feature described as "essential" or "critical", let alone that any specific action should happen if the requested service is not in the list of service. If the specification does not describe an aspect of the invention as "essential" or "critical", a decision as to whether an omitted claim feature is "essential" or "critical" because a subjective matter.

Third, the specification indicates that the system can operate in any number of different ways if the requested service is not in the list of services. The system can establish a new virtual machine to offer the service (*see, e.g.*, specification, page 14, line 29 through page 15, line 2). The system can respond that no virtual machine is currently available offering the service (*see, e.g.*, specification, page 9, lines 4-12). The system could conceivably do nothing (although not responding at all to the request would probably be "irresponsible" of the system). But if no specific course of action is necessary when the requested service is not in the list of services, it would seem that how the system responds when the requested service is not in the list of services is not "essential" or "critical".

Fourth, dependent claims 17 and 28 (and their further dependent claims) recite some things that can be done when the requested service is not in the list of services. Thus, the claimed invention, taken as a whole, does claim what happens if the requested service is not in the list of services.

Fifth, the Applicant could amend the claims to recite that, for example, "if the requested service is in the list of services, either make the requested service available or

respond that the requested service is not available". Such an amendment would be consistent with the specification, and would reflect at least some of the courses of action that could be taken if the requested service is not available. But if the Applicant were to amend the claims to recite the possible courses of action that could be taken if the requested service is not available, it would be equivalent to the claims as they currently stand, where nothing is claimed about what happens if the requested service is not available. In such circumstances, it would seem that what should happen if the requested service is not available is not essential to the claimed invention.

Accordingly, the Applicant believes claims 16 and 27 are patentable under 35 U.S.C. § 112, ¶ 1, and requests the Examiner to withdraw the rejection.

REJECTIONS UNDER 35 U.S.C. § 112, ¶ 2

The Examiner rejects claim 8 as lacking antecedent basis for the term "the service". The Examiner rejects claim 15 as being unclear whether "a first service" is the same "first service" as recited in parent claim 9. The Applicant has amended claims 8 and 15 to refer to "the first service", which the Applicant believes addresses the Examiner's rejections. Accordingly, the Applicant respectfully requests the Examiner to withdraw the rejection of claims 8 and 15 under 35 U.S.C. § 112, ¶ 2.

The Examiner rejects claims 16 and 27 "as being incomplete for omitting essential steps" (*see* Office Action dated May 11, 2009, pages 3-4). This is the same argument as the Examiner's rejection under 35 U.S.C. § 112, ¶ 1, and the Applicant responds with the same argument (presented above).

The Examiner also cites to "Figure 5A step 512 and 515 of the original drawings and page 14 lines 2-5 of the original specification" in support of the Examiner's position that claims 16 and 27 omit essential steps (*see* Office Action dated May 11, 2009, page 4). The Applicant respectfully points out that if the original specification had not included those portions, the Examiner could then reject, for example, claims 17 and 28 under 35 U.S.C. § 112, ¶ 1 as not being supported by the specification. Further, just because the specification and drawings describe a particular feature does not automatically mean that that feature is "essential". As argued above, unless the specification expressly indicates what features are "essential", determining which claim features are "essential" becomes a subjective matter. Finally, if the fact that the specification and/or drawings describe a feature automatically implied that that feature was "essential" would mean that there could not be any dependent

claims in an application: every feature shown in the drawings of the application would be "essential" and would have to be included in the independent claims.

The Applicant respectfully requests the Examiner to withdraw the rejection of claims 16 and 27 under 35 U.S.C. § 112, ¶ 2.

REJECTIONS UNDER 35 U.S.C. § 101

The Examiner rejects claims 16, 24, and 26 under 35 U.S.C. § 101 as being directed to non-statutory subject matter. The Examiner argues that claims 16 24, and 26 are neither positively tied to a particular machine nor are transformative. The Applicant respectfully disagrees.

First, the Applicant fails to understand why only claims 16, 24, and 26 are rejected under 35 U.S.C. § 101, and not claims 17-23, 40, and 46-47. The only rationale the Applicant can deduce is that the Examiner believes claims 17-23, 40, and 46-47 recite statutory subject matter.

Second, claim 16 recites "a set of virtual machines". A person of ordinary skill in the art would recognize that virtual machines operate in the memory (or other storage) of machines, such as the server farm machine (*see, e.g.*, specification, page 10, lines 17-19). As such, claim 16 implicitly is tied to a particular machine: the machine that stores the virtual machine.

Nevertheless, the Applicant has amended claim 16 to expressly recite "receiving a request for a service at a server" and "accessing a list of services offered by a set of virtual machines supported by a set of machines", which ties the method to a particular machine. Accordingly, the Applicant believes claim 16 now recites statutory subject matter, and should now be patentable under 35 U.S.C. § 101.

As claims 24 and 26 depend from claim 16, claims 24 and 26 should now also be patentable under 35 U.S.C. § 101.

REJECTIONS UNDER 35 U.S.C. § 102(e)

In rejecting claim 1, the Examiner cites to Bulson as teaching the features of the claimed invention. The Applicant respectfully disagrees.

First, the Examiner has not cited to any portion of Bulson as teaching "a service manager . . . to select a first virtual machine from a plurality of virtual machines offering the first service responsive to the request", as recited in claim 1. Without indicating where

Bulson teaches this feature of the claims, the rejection under 35 U.S.C. § 102(e) is incomplete.

Second, the Applicant does not believe Bulson teaches "select a first virtual machine from a plurality of virtual machines offering the first service responsive to the request". Bulson is directed toward managing processing including initiation of virtual machines. According to Bulson, "[i]solation between tasks executing within a computing environment is important to avoid data corruption. . . . Thus, a need exists for enhanced isolation between tasks" (*see* Bulson, ¶ 2). Bulson repeats this theme in describing how her invention operates: "a request obtained by a node of a computing environment is processed by a virtual machine of that node, and the virtual machine is exclusive to that request" (*see* Bulson, ¶ 17: exclusive meaning that the virtual machine operates only to respond to that one request); "[s]ubsequent to completing the request, the virtual machine exclusive to the request is sanitized and terminated" (*see* Bulson, ¶ 17); "[a] manager virtual machine on that node then initiates a job virtual machine to process the request" (*see* Bulson, ¶ 18); "[t]he manager virtual machine is coupled to the job virtual machine and has the responsibility of managing the job virtual machine which is used to process a particular request. Each job virtual machine is exclusive to a request and the starting and terminating of the job virtual machine is controlled by the manager virtual machine" (*see* Bulson, ¶ 24); "[t]his virtual machine is exclusive to the request" (*see* Bulson, ¶ 29); "[j]ob management service 302 then requests shutdown of the job virtual machine" (*see* Bulson, ¶ 39). FIG. 3 of Bulson is consistent with this interpretation: at step 316 the manager virtual machine activates the job virtual machine, and when the request is satisfied, at step 342 the manager virtual machine shuts down the virtual machine.

From this, it can be seen that in Bulson, each virtual machine is used exactly once: to satisfy a single request. After the request is satisfied, the job virtual machine is shut down, and is not available to satisfy any further requests. But if virtual machines are shut down after the request is satisfied, then the virtual machine cannot be used to satisfy any further requests.

The Examiner might argue that, although a virtual machine might be shut down after it has satisfied a request, Bulson could still teach the possibility of multiple virtual machines that can satisfy a request as existing in the first place. The problem with this argument is that Bulson only "activates" the job virtual machine in response to the job request (*see* Bulson, ¶ 29). This, of course, begs the question: what does it mean to "activate" the job virtual

machine? Bulson states that "in one example, it is predefined such that it can be activated without performing a defining action. While one or more job virtual machines are predefined in this embodiment to minimize time in activating a virtual machine, in other embodiments, one or more of the job virtual machines are not predefined, but instead, are defined when needed" (*see* Bulson, ¶ 29). From this, it is clear that to "activate" the job virtual machine means either to define the virtual machine (that is, create the virtual machine from scratch) or to use a "predefined" virtual machine. But even if the virtual machine is "predefined", it is still "activated" exclusively to respond to the request (*see, e.g.*, Bulson, ¶ 29). This suggests that the "predefined" virtual machine is not currently loaded; "predefined" simply means that the virtual machine does not need to be defined (*see, e.g.*, Bulson, ¶ 29: "it is predefined such that it can be activated without performing a defining action"), but it still needs to be loaded.

In the context of the claimed invention, Bulson's "predefined" virtual machine is equivalent to an image, which is "the virtual machine before it is activated" (*see* specification, page 5, line 19). But until the virtual machine is "activated", it cannot be used, and is not one of claimed "set of virtual machines". Thus, the only virtual machines in the "set of virtual machines" in Bulson would be virtual machines that are already activated *and* assigned to process other requests; and because such assignment is "exclusive", these virtual machines cannot be used to process a new request. But if the existing, activated virtual machines are not available to process a new request, then Bulson does not teach "of virtual machines offering the first service responsive to the request", which means that Bulson cannot "select a first virtual machine from a plurality of virtual machines offering the first service responsive to the request".

In addition, new claim 50 has been added to emphasize that at least one virtual machine in the claimed invention can process multiple requests. If the virtual machines of Bulson are shut down after a single request is satisfied, then no virtual machine in Bulson can process multiple requests.

As Bulson does not teach or suggest a service manager to select a first virtual machine from a plurality of virtual machines offering the first service responsive to the request, claim 1 is patentable under 35 U.S.C. § 102(e) over Bulson. Accordingly, claim 1 is allowable, as are dependent claims 2-8, 38, 42-43, and 50.

As Bulson does not teach or suggest a virtual machine that can process multiple requests, claim 50 is patentable under 35 U.S.C. § 102(e) over Bulson. Accordingly, claim 50 is allowable.

In rejecting claim 3, the Examiner argues that Bulson teaches "a database of images" (*see* Office Action dated May 11, 2009, page 7, citing Bulson, ¶ 23 and 49). The Applicant respectfully disagrees.

As discussed above with reference to claim 1, an "image" is "the virtual machine before it is activated". Therefore, the Examiner's reference to ¶ 23 of Bulson is off point: a node including a plurality of virtual machines (all of which are exclusively assigned to process requests) is distinguishable from a database of images.

Further, the Examiner also argues that Bulson teaches "install[ing] a first image from the database of images as the first virtual machine" in that Bulson teaches "one or more or the job virtual machines are not predefined, but instead, are defined when needed" in ¶ 49. The Applicant respectfully suggests that if the Examiner is going to argue that an "image" as claimed is a "virtual machine", then installing that "image" cannot include defining the virtual machine: by the time the node includes the virtual machine, the virtual machine must, of necessity, already be defined.

Finally, the Examiner further argues that Bulson also teaches "install[ing] a first image from the database of images as the first virtual machine" in that Bulson teaches "'placing the job virtual machine back to its original image" during clean-up" in ¶ 43. But, again, "clean-up" in Bulson is part of the shutdown process, which occurs after the virtual machine has processed the request. If the virtual machine has already processed the request, then the virtual machine was already installed in the node, and therefore "clean-up" in Bulson is not equivalent to installing an image.

The Applicant also respectfully points out that, in rejecting claim 5, the Examiner argues that Bulson's shut-down teaches the deleter. But if clean-up is part of the shut-down process, then clean-up cannot be part of installing an image.

As Bulson does not teach or suggest a database of images or a service manager operative to install an image from the database of images as the virtual machine, claim 3 is patentable under 35 U.S.C. § 102(e) over Bulson. Accordingly, claim 3 is allowable.

In rejecting claim 6, the Examiner argues that Bulson teaches "the service manager including a table stored in the storage, the table to indicate a state for each virtual machine in the set of virtual machines", citing ¶ 25. The Applicant respectfully disagrees.

As claim 6 recites that it is the service manager that includes the table indicating the state for each virtual machine, it becomes important what is analogous to the service manager. A job virtual machine of Bulson cannot be equivalent to the claimed service manager, as the job virtual machine only knows its own status, and has no contact with any other virtual machines. Similarly, a management virtual machine of Bulson cannot be equivalent to the service manager. A management virtual machine might have contact with each virtual machine *included in the node*; but each node has its own management virtual machine, and the management virtual machines of the various nodes are not in communication with each other. This leaves only the job management service of Bulson as potentially being equivalent to the claimed service manager.

According to Bulson (as cited by the Examiner), "[d]uring processing of the request, the job virtual machine communicates directly with the job management service to provide status and/or results". The job management service can prompt the job virtual machine for status, but the job virtual machine does not spontaneously provide status to the job management service. According to Bulson:

> At some time during processing, the user may desire to obtain status of the request. Thus, the user sends a query request to the job management service, STEP 326, which, in turn, sends a status query request to the job virtual machine, STEP 328. Subsequent to receiving the status query request, the job virtual machine sends a status message to the job management service, STEP 330. The status message is then forwarded from the job management service to the user, STEP 332.

(*see* Bulson, ¶ 38). This means that the job management service can only know the status of a job virtual machine when it queries for it, and does not always know the status of the individual job virtual machines.

Further, just because the job management service of Bulson *can* query for the status of a job virtual machine does not mean the job management service has actually queried for the status, or stored that information in a table. Nowhere does Bulson actually describe any storage mechanism to store the state for each virtual machine. And if the job management service only queries for the status in response to a request from the user and forwards the status to the user, there is no reason to believe that the job management service stores the status.

As Bulson does not teach or suggest the service manager including a table to indicate a state for each virtual machine in the set of virtual machines, claim 6 is patentable under 35 U.S.C. § 102(e) over Bulson. Accordingly, claim 6 is allowable.

In rejecting claim 7, the Examiner argues that Bulson teaches a list of services, citing Bulson ¶ 29 (*see* Office Action dated May 11, 2009, page 8). The Applicant respectfully disagrees.

From the Examiner's rejection and citation to ¶ 29 of Bulson, it appears that the Examiner is equating the claimed "list of services" to all services that could be offered by any job virtual machine in Bulson, regardless of whether the hypothetical virtual machine is currently active or not. First, the Applicant respectfully points out that nowhere does Bulson actually teach such a list. Second, the Examiner is assuming that, for any request, a job virtual machine in Bulson is capable of being defined that can process the request: nowhere does Bulson suggest otherwise. But given this assumption, there is no need for such a "list of services": if there is always a job virtual machine in Bulson that can respond to a request, then there is no need to list "services offered by each virtual machine in the set of virtual machines".

The Applicant also respectfully suggests that the Examiner is misinterpreting the claimed "list of services". The Applicant respectfully requests the Examiner to compare, for example, claims 16 and 18. In claim 16, the selected virtual machine offers the requested service, which is already in the list of services, and therefore an existing virtual machine can process the request. In claim 18, after it is determined that the requested service is not in the list of services, a new virtual machine is created and installed to offer the requested service, after which the requested service is added to the list of services. This shows that the "list of services" is not a list of all services that could conceivably be offered by any virtual machine, including virtual machines not currently installed: the "list of services" is the services available from the virtual machines currently installed. Support for this interpretation of the "list of services" can be found in the specification at, for example, page 11, lines 6-14.

As Bulson does not teach or suggest a "list of services" as claimed, claim 7 is patentable under 35 U.S.C. § 102(e) over Bulson. Accordingly, claim 7 is allowable.

In rejecting claim 8, the Examiner argues that Bulson teaches at least one of the virtual machines implementing multiple services, citing ¶ 29. The Applicant respectfully disagrees. Even if Bulson teaches that virtual machines might be defined when needed, this is not equivalent to a virtual machine offering multiple services. For a virtual machine to offer multiple services means that the virtual machine can handle different types of requests (to process the different services). But if the job virtual machines of Bulson are exclusive to

a single request, then there is no reason for the virtual machines to offer multiple services: once the job virtual machine processes a single request, the job virtual machine is then shut down and not used again. (Other job virtual machines, offering the same functionality, might be activated; but these are different job virtual machines, even if they offer the same functionality.) But if the job virtual machine is activated to process a request and then shut down, there is no point in the job virtual machine being capable of offering a second service: that second service would never be invoked. It would be more efficient for the virtual machine to include the software necessary to process just the one request, and no other types of services, as making the virtual machine capable of processing a second type of request would require including software to process that other request, which would not be executed. But additional software means more memory is needed, and more time is needed to activate the virtual machine, which means the virtual machine is less efficient to activate.

Accordingly, Bulson teaches away from a virtual machine offering multiple services. But if Bulson teaches away from a virtual machine offering multiple services, claim 8 is patentable under 35 U.S.C. § 102(e) over Bulson. Therefore, claim 8 is allowable, as is dependent claim 38.

In rejecting claim 9, the Examiner makes the same basic arguments as with claim 1. In particular, the Examiner does not point to anywhere in Bulson as teaching "a service manager . . . to select a first virtual machine from a plurality of virtual machines offering the first service responsive to the request", as recited in claim 9. Without indicating where Bulson teaches this feature of the claims, the rejection under 35 U.S.C. § 102(e) is incomplete. Further, for the same reasons discussed above with reference to claim 1, the Applicant does not believe Bulson teaches this feature.

The Examiner also argues that Bulson teaches "a list of services offered", citing to FIG. 2A and ¶¶ 23 and 29. (The Examiner rejects claim 12, citing the same portion of Bulson: *see* Office Action dated May 11, 2009, page 10.) According to the Examiner, Bulson teaches that "[W]hile one or more job virtual machines are predefined in this embodiment to minimize time in activating a virtual machine, in other embodiments, one or more of the job virtual machines are not predefined, but instead, are defined when needed" (*see* Office Action dated May 11, 2009, page 8). The Applicant respectfully points out that whether job virtual machines are predefined or not is irrelevant to the feature of a "list of services offered".

In fact, the cited portion of Bulson would seem to be contrary to the claimed invention. As the "list of services offered" is used "to select a first virtual machine from a plurality of virtual machines offering the first service responsive to the request", the claim recites that the list of services identifies virtual machines that offer the services. As discussed above with reference to claim 1, a "predefined" job virtual machine is an "image", not a virtual machine. Similarly, an "undefined" job virtual machine is not a virtual machine, but rather a hypothetical virtual machine that can exist, if defined in a particular way. But if "predefined" or "undefined" job virtual machines are not virtual machines currently running, then they cannot "offer" services. At best, Bulson can have a list of services that *could be* offered, if an appropriate job virtual machine were defined and installed.

Further, as discussed above with reference to claim 1, each virtual machine can execute once, after which it is shut down. As such, there is no reason for Bulson to maintain a "list of services offered" by existing job virtual machines; those services will not be offered anymore once the job virtual machines offering those services are shut down. (The job virtual machines could be defined anew, but that would result in a different job virtual machine, and not one currently executing and offering a service.)

In addition, new claim 51 has been added to emphasize that at least one virtual machine in the claimed invention can process multiple requests. If the job virtual machines of Bulson are shut down after a single request is satisfied, then no job virtual machine in Bulson can process multiple requests.

As Bulson does not teach or suggest a service manager to select a first virtual machine from a plurality of virtual machines offering the first service responsive to the request or a list of services offered, claims 9 and 12 are patentable under 35 U.S.C. § 102(e) over Bulson. Accordingly, claims 9 and 12 are allowable, as are dependent claims 10-11, 13-15, 39, 44-45, and 51.

As Bulson does not teach or suggest a virtual machine that can process multiple requests, claim 51 is patentable under 35 U.S.C. § 102(e) over Bulson. Accordingly, claim 51 is allowable.

The Examiner rejects claim 13 for the same reasons as claim 1. Therefore, claim 13 is patentable under 35 U.S.C. § 102(e) over Bulson for the same reasons as claim 1, and accordingly is allowable.

In rejecting claim 14, the Examiner argues that Bulson teaches a management machine, citing to FIG. 2A of Bulson as showing the job management service and the manager virtual machine (*see* Office Action dated May 11, 2009, page 10). The Applicant respectfully points out that in FIG. 2A of Bulson, the job management service and the manager virtual machine are in different nodes, and therefore cannot be on a single management machine as claimed. Therefore, claim 14 is patentable under 35 U.S.C. § 102(e) over Bulson, and accordingly is allowable.

The Examiner rejects claim 15 for the same reasons as claim 8. Therefore, claim 15 is patentable under 35 U.S.C. § 102(e) over Bulson for the same reasons as claim 8, and accordingly is allowable.

In rejecting claim 16, the Examiner argues that Bulson teaches "accessing a list of services offered by a set of virtual machines" and "determining if the requested service is in the list of services" (citing Bulson, ¶ 29), and "selecting one of the plurality of virtual machines" (citing Bulson, ¶¶ 29 and 37; *see* Office Action dated May 11, 2009, page 11). The Applicant respectfully disagrees.

First, Bulson does not teach "a list of services offered by a set of virtual machines". As discussed above with reference to claim 9, no executing job virtual machine in Bulson can be used to satisfy an incoming request, as all job virtual machines in Bulson are shut down after they process a request. Therefore, at best, Bulson teaches a list of services that *could be* offered by an appropriately defined job virtual machine. And the Examiner's reference to "predefined" or "undefined" job virtual machines is off point, as these portions of Bulson refer to job virtual machines that are not currently in existence and executing. Therefore, Bulson does not teach a "list of services offered by a set of virtual machines". Further, if Bulson does not teach a list of services, Bulson cannot teach "determining if the requested service is in the list of services".

Second, Bulson does not teach "selecting one of the plurality of virtual machines". As discussed above with reference to claim 1, Bulson only teaches "activating" an appropriate job virtual machine. To "activate" the job virtual machine means that the job virtual machine is not currently "active", which means that the job virtual machine is not actually available to offer a service. (And since Bulson "activates" job virtual machines specifically to process requests, after which the job virtual machine is shut down, no "active"

job virtual machine can be available in Bulson to offer a service.) Therefore, Bulson cannot "select one of the plurality of virtual machines".

In addition, new claim 52 has been added to emphasize that at least one virtual machine in the claimed invention can process multiple requests. If the job virtual machines of Bulson are shut down after a single request is satisfied, then no job virtual machine in Bulson can process multiple requests.

As Bulson does not teach or suggest accessing a list of services offered by a set of virtual machines, determining if the requested service is in the list of services, or selecting one of the plurality of virtual machines, claim 16 is patentable under 35 U.S.C. § 102(e) over Bulson. Accordingly, claim 16 is allowable, as are dependent claims 17-24, 26, 40, 46-47, and 52.

As Bulson does not teach or suggest a virtual machine that can process multiple requests, claim 52 is patentable under 35 U.S.C. § 102(e) over Bulson. Accordingly, claim 52 is allowable.

The Examiner rejects claim 27 for the same reasons as claim 16. Therefore, claim 17 is patentable under 35 U.S.C. § 102(e) over Bulson for the same reasons as claim 16, and accordingly is allowable, as are dependent claims 28-35, 37, 41, 48-49, and 53.

The Examiner rejects claim 38, arguing that Bulson teaches "the first virtual machine does not implement the second service", citing to ¶ 29 (*see* Office Action dated May 11, 2009, page 13). The Examiner rejects claim 39 for the same reasons (see Office Action dated May 11, 2009, page 13). The Applicant respectfully points out that nowhere does Bulson say that a job virtual machine offers a particular service, or (more importantly) fails to offer a particular service. That a job virtual machine might be "predefined" or "undefined" is off point. First, if the job virtual machine is "predefined" or "undefined", then, as discussed above with reference to claim 1, the job virtual machine is not yet "active", and so cannot offer any services. (Since the claimed virtual machines have to offer at least one service (*see* claim 1), an "inactive" job virtual machine in Bulson is not a job virtual machine as claimed, and is distinguishable on that basis as well.) But claim 38 specifically recites that "the first virtual machine does not implement the second service". In other words, in claim 38, there is one virtual machine that offers both the first service and the second service (*see* claim 8), and

another virtual machine that offers the first service but does not offer the second service (*see* claims 1 and 38). Nowhere does Bulson teach or suggest this possibility.

As Bulson does not teach or suggest a virtual machine does not implement the second service, claims 38-39 are patentable under 35 U.S.C. § 102(e) over Bulson. Accordingly, claims 38-39 are allowable.

The Examiner rejects claim 40, arguing that Bulson teaches "accessing the list of services offered by the set of virtual machines, the list of services including at least the requested service and a second service" and "selecting the one of the plurality of virtual machines offering the requested service and not offering the second service" (*see* Office Action dated May 11, 2009, pages 13-14). The Examiner rejects claim 41 for the same reasons (see Office Action dated May 11, 2009, page 14). As discussed above with reference to claim 16, Bulson does not teach or suggest a list of services offered by the set of job virtual machines, nor does Bulson teach or suggest selecting one of the job virtual machines. Further, as discussed above with reference to claim 38, Bulson does not teach or suggest that a job virtual machine might explicitly not offer a particular service. For these reasons, claims 40-41 are patentable under 35 U.S.C. § 102(e) over Bulson, and are therefore allowable.

In rejecting claim 42, the Examiner argues that Bulson teaches "select a first virtual machine from a plurality of virtual machines offering the first service responsive to the first service in the request" (*see* Office Action dated May 11, 2009, page 14). The Examiner rejects claims 44, 46, and 48 for the same reasons (*see* Office Action dated May 11, 2009, page 14). As discussed above with reference to claim 1, Bulson does not teach or suggest selecting a virtual machine to respond to the request. Accordingly, claims 42, 44, 46, and 48 are patentable under 35 U.S.C. § 102(e) over Bulson, and are therefore allowable, as are dependent claims 43, 45, 47, and 49.

In rejecting claim 43, the Examiner argues that Bulson teaches "the set of virtual machines includes a second virtual machine that does not implement the first service" (*see* Office Action dated May 11, 2009, page 14). The Examiner rejects claims 45, 47, and 49, for the same reasons (*see* Office Action dated May 11, 2009, page 14). As discussed above with reference to claim 38-41, Bulson does not teach or suggest that a particular job virtual

machine can fail to offer a particular service. Accordingly, claims 43, 45, 47, and 49 are patentable under 35 U.S.C. § 102(e) over Bulson, and are therefore allowable.

New claim 53 has been added to emphasize that at least one virtual machine in the claimed invention can process multiple requests. If the virtual machines of Bulson are shut down after a single request is satisfied, then no virtual machine in Bulson can process multiple requests.

As Bulson does not teach or suggest a virtual machine that can process multiple requests, claim 53 is patentable under 35 U.S.C. § 102(e) over Bulson. Accordingly, claim 53 is allowable.

REJECTIONS UNDER 35 U.S.C. § 103

Rejections over Bulson

In rejecting claim 4, the Examiner argues that "Official Notice is taken for archiving the virtual machine, which is a well known technique in resource management" (*see* Office Action dated May 11, 2009, page 15). The Examiner rejects claims 26 and 37 under a similar line of reasoning (*see* Office Action dated May 11, 2009, pages 15-16). The Applicant respectfully disagrees. Archiving of data might be a well-known technique in resource management. But in the context of managing virtual machines the Applicant does not believe that archiving virtual machines is well known. The Applicant contends that a person of ordinary skill in the art would not consider it obvious to "archive" virtual machines, as claimed. Further, archiving a virtual machine is very different from archiving data, as a virtual machine includes information that raw data would not have: for example, state information, the values of the registers in the virtual machine, or the program counter. One cannot simply take a virtual machine out of memory in the same way that raw data can be moved.

As the Applicant has "specifically point[ed] out the supposed errors in the examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art" (*see* M.P.E.P. § 2144.03), the Applicant respectfully requests the Examiner to substantiate the Examiner's assertion, or withdraw the rejection of claims 4, 26, and 37.

Rejections over Bulson in view of Ottati

In rejecting claim 20, the Examiner argues:

> Regarding claim 20, Bulson and Ottati further disclose selecting one of a set of machines to support the new virtual machine and installing the image for the new virtual machine in the selected machine (one must make decision what machines to install before installing an image that).

(*see* Office Action dated May 11, 2009, page 16). The Applicant respectfully submits that this is an incomplete argument. Further, although the Examiner has generally asserted that "Bulson and Ottati" disclose the claimed invention, the Examiner has not provided any specifics as to where the references teach the claimed features. In particular, the Examiner has not cited to any portion of Ottati. The Applicant respectfully requests that the Examiner issue a complete rejection of claim 20. As claim 31 is rejected for the same reasons as claim 20 (*see* Office Action dated May 11, 2009, page 17), the Applicant is similarly unable to respond to the Examiner's rejection of claim 31.

As the Examiner has failed to make a prima facie rejection that claims 20 and 31 are obvious over Bulson in view of Ottati, claims 20 and 31 are patentable under 35 U.S.C. § 103(a) over Bulson in view of Ottati. Accordingly, claims 20 and 31 are allowable, as are dependent claims 21 and 32.

In rejecting claims 22-23, the Examiner argues that Bulson and Ottati teach the claimed features, but the Examiner does not explain where in Bulson and Ottati the claimed features are supposedly taught. Claims 33-34 are rejected for the same reasons as claims 22-23. Without providing an explanation as to where Bulson and Ottati teach the claimed features, the factual record is incomplete (*see, e.g.*, M.P.E.P. § 2141 ("When making an obviousness rejection, Office personnel must therefore ensure that the written record includes findings of fact concerning the state of the art and the teachings of the references applied")), and the Examiner has failed to make a prima facie rejection that claims 22-23 and 33-34 are obvious.

As the Examiner has failed to make a prima facie rejection that claims 22-23 and 33-34 are obvious over Bulson in view of Ottati, claims 22-23 and 33-34 are patentable under 35 U.S.C. § 103(a) over Bulson in view of Ottati. Accordingly, claims 22-23 and 33-34 are allowable.

Rejections over Bulson in view of Ottati and Edstrom

In rejecting claim 18, the Examiner acknowledges that Bulson and Ottati "are silent about further comprising adding the requested service to the list of services". The Examiner cites to Edstrom for this feature (*see* Office Action dated May 11, 2009, pages 17-18). The Examiner rejects claim 29 for the same reasons as claim 18 (*see* Office Action dated May 11, 2009, page 18). The Applicant respectfully disagrees.

As discussed above with reference to claim 7, Bulson does not teach a list of services. The only possible interpretation of Bulson is that Bulson believes all requests can be processed by some virtual machine, in which case there is no need for a "list of services" (since every service is "offered"). But this leads to two problems.

First, if there is no "list of services", then it would not be obvious to modify Bulson to add such a list, which would be a necessary prerequisite to being able to add a requested service to the list of services. But such a modification would be very involved: far beyond the level of obviousness. As per M.P.E.P. § 2143.01, "[t]he mere fact that references can be combined or modified does not render the resultant combination obvious" and "[a] statement that modifications of the prior art to meet the claimed invention would have been '"well within the ordinary skill of the art at the time the claimed invention was made"' because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient" (emphases in original).

Second, if Bulson teaches a "list of services", that "list" includes every possible service. But if Bulson's "list" includes every possible service, then there is no "requested service" to add to the list: by definition, if Bulson's "list" has every possible service, then it has the requested service. This means there would be no need to add the requested service to the "list", and Bulson teaches away from the proposed combination with Edstrom.

As Bulson does not teach a list of services, or Bulson teaches away from the proposed combination with Edstrom, claims 18 and 29 are patentable under 35 U.S.C. § 103(a) over Bulson in view of Ottati and Edstrom. Accordingly, claims 18 and 29 are allowable, as are dependent claims 19 and 30.

For the foregoing reasons, reconsideration and allowance of claims 1-24, 26-35, and 37-53 of the application as amended is requested. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

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